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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,782	03/12/2002	Takafumi Hashimoto	1064-02	9611

35811 7590 07/02/2003

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EXAMINER	
KUMAR, PREETI	

ART UNIT	PAPER NUMBER
1751	6

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,782	HASHIMOTO ET AL.	
	Examiner	Art Unit	
	Preeti Kumar	1751	

-- Th MAILING DATE of this communication appears on th cover sh et with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-13 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

3. Claims 1-13 are objected to because of the following informalities: Examiner suggests for clarity and conciseness, the phrase, "...which is characterized in that..." be replaced by 'comprising' or 'wherein'. Also the use of furthermore in claim 7 is unnecessary. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "nap length" and "local fatigue resistance" in claim 1 are relative terms which render the claim indefinite. The terms "nap length" and "local fatigue resistance" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Examiner notes that the specification does not provide a clear and concise definition of what applicant means by claiming the property of local fatigue resistance of at least 50%. Page 3, lines 5-10, of the instant

specification first mentions the phrase "local fatigue resistance" without giving an adequately clear and concise definition.

Specifically regarding claims 7 and 12, claiming standardized testing method values in the claims is indefinite when applicant has not described the testing methods within the specification.

Also, claim 9 recites the limitation "the rubbing weight loss" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Nakashima et al. (US 5,876,466).

Nakashima et al. teach a suede-like artificial leather treated with at least one dye selected from the group consisting of sulfur dyes, vat dyes and sulfur vat dyes, and 2,2',4,4'-tetrahydroxy benzophenone. The suede-like artificial leather has excellent color resistance to light and color fastness to both washing and dry-cleaning. See abstract. The suede-like artificial leather of the present invention includes, as a base, an entangled nonwoven fabric made of microfine polyamide fibers having an average fineness of 0.5 denier or smaller; a porous or nonporous polyurethane incorporated inside of the nonwoven fabric; and at least one surface napped, so that it is covered with fibrous nap composed of the base-constituting fibers. The suede-like artificial leather is dyed with at least one dye selected from the group consisting of sulfur dyes, vat dyes and sulfur vat dyes, thereby being colored to a desired color; and then the surface of the colored suede-like artificial leather is coated with a solution containing a benzophenone compound. See col.4, ln.12-25.

Nakashima et al. teach examples of the polyurethane to be incorporated in the fiber entangled nonwoven fabric include polyester-polyurethane, polyether-polyurethane, polyester-ether-polyurethane, polylactone-polyurethane and polycarbonate-polyurethane. The polymers may be obtained by solution polymerization,

melt polymerization or bulk polymerization of at least one polymer diol which has an average molecular weight of 700 to 3000 and is selected from the group consisting of polyester diols, polyether diols, polyesterether diols, polylactone diols and polycarbonate diols. See co.5, ln.35-45.

Specifically regarding claim 7, Nakashima et al. teach that a suitable amount of the dye to be adhered to the suede-like artificial leather falls within a range of 80 to 95% of the described dye concentration (col.6, ln.9-53), i.e., within a range of 0.008 to 27% based on the weight of the artificial leather. The suede-like artificial leather dyed according to the present invention has excellent washing fastness of color and dry-cleaning fastness of color and, in addition, exhibits clear color development. See col.6, ln.53-60.

Specifically regarding claims 5-6, and 10-13, Nakashima et al. teach that the weight ratio of the polyurethane in the suede-like artificial leather is 20 to 60% by weight. Nakashima et al. teach that the fibrous base sheet may be sliced into a predetermined thickness or not sliced and that the at least one surface of the sheet, which will be a surface of the product, is preferably subjected to a buffing treatment by sand paper or a napping treatment by a napping machine to form a napped surface composed of microfine polyamide fibers. After various steps including washing treatment, a suede-like artificial leather is obtained. See col.6, ln.1-8.

In example 1, Nakashima et al. illustrate a fiber-entangled non-woven fabric having an average weight of 650 g/m^2, produced from a multi-component fiber having a fineness of 4.5 deniers, which fiber is composed of 40 parts of a high-fluidity

polyethylene (sea component) and 60 parts of 6-nylon (island component), was impregnated with a solution containing 13 parts of a polyurethane composition composed mainly of a polyether base polyurethane and 87 parts of dimethyl-formamide, followed by wet coagulation, whereby a fibrous sheet containing 168 g/m^2 of polyurethane was obtained. The fibrous sheet so obtained was treated in hot toluene to remove the polyethylene component from the fiber by dissolution, whereby a fibrous sheet (A) having a fiber-entangled non-woven fabric of 6-nylon microfine fiber bundles (average fineness of 0.05 denier) with polyurethane incorporated therein and having a thickness of about 1.3 mm was obtained. The fibrous sheet (A) was centrally sliced into two portions. The surface at the time of coagulation was napped by an emery buffing machine, followed by brushing, whereby a suede-like sheet (B) having an average thickness of 0.5 mm was obtained. The suede-like sheet (B) so obtained was dyed red with a vat dye. Then, a solution (A-1) composed of 10 parts of 2,2'4,4'-tetrahydroxy benzophenone and 90 parts of methyl ethyl ketone (which will hereinafter be abbreviated as "MEK") was applied to the fiber napped surface of the suede-like product (C) by the gravure roll coating method, followed by drying and brushing, whereby a suede-like sheet product (D) was obtained. The amount of the benzophenone compound adhered was 1.0% based on the weight of the artificial leather (C). The light resistance test, washing test and dry cleaning test of the suede-like sheet product (D) so obtained were carried out by a fadeometer and results are shown in Table 1. Table 1 shows that the suede-like artificial leather according to the

present invention has excellent color resistance to light, washing and dry-cleaning, and is excellent in both appearance and touch feeling. See col. 7-8.

Accordingly, the broad teachings of Nakashima et al. appear to anticipate the material limitations of the instant claims.

Alternatively, even if the broad teachings of Nakashima et al. are not sufficient to anticipate the material limitations of the instant claims, it would have been nonetheless obvious to one of ordinary skill in the art, to arrive at a suede like sheet comprising poly (1,6 hexamethylene carbonate) diol because Nakashima et al. teach a suede like sheet comprising poly carbonate diol in general.

9. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akasawa (US 5,679,418).

Akasawa teaches a polyurethane composition suitable for producing leather-like sheets having a soft hand and excellent durability and being dyeable with acid dyes comprising a mixture of: a first polyurethane (a) obtained by reacting: an intermediate product diol (D) with both ends thereof substantially being OH and obtained by reacting a tertiary amino group-containing diol (A), a polymer diol (B) having a number average molecular weight of 500 to 3,000 selected from the group consisting of polyesters, polycarbonates, polylactones and polyethers and an organic diisocyanate (C1), in such stoichiometric amounts as to make the molar ratio of NCO/OH 0.5 to 0.99, a low molecular weight diol (E), and diphenylmethane-4,4'-diisocyanate (C2), and a second polyurethane (b) having a solubility in toluene of not more than 50% by weight and obtained by reacting a polymer diol having structural units from dimethylsiloxane and a

10,000, the ratio of said second polyurethane (b) to said first polyurethane (a) being in a range of 0.5 to 50% by weight. See abstract.

Specifically regarding the diol of claims 3-5, Akasawa teaches examples of usable diols are aliphatic diols, e.g., ethylene glycol, propylene glycol, butanediol, neopentyl glycol, methylpentanediol, hexanediol, heptanediol, octanediol, nonanediol, decanediol and dodecanediol, which diols may be substituted with a lower alcohol; alicyclic diols, e.g., cyclohexanediol and hydrogenated xylylene glycol and aromatic diols such as xylylene glycol. These diols may be used singly or in combination of 2 or more. Among these diols, aliphatic diols, in particular those having 4 to 9 carbon atoms, e.g., butanediol, methylpentanediol, hexanediol, heptanediol, methyloctanediol and nonanediol are preferably used, either singly or in combination of 2 or more. See col.6, ln.20-35. Examples of usable polylactone diols are poly-.epsilon.-caprolactonediol, poly-trimethyl-.epsilon.-caprolactonediol and poly-.beta.-methyl -.delta.-valerolactonediol. See col.6, ln.58-63.

Akasawa teaches that the polyurethanes obtained by the process according to the present invention may, upon use, incorporate various additives usable for conventional polyurethanes, e.g., flame retardants such as phosphorus-based compounds, halogen-containing compounds, antioxidants, UV-absorbers, pigments, dyes, plasticizers and surfactants. See col.12, ln.4-9.

Akasawa teaches that the fibrous base used for the leather-like sheet according need not comprise dyed fibers where the sheet is a grain type one having on the surface of the base a surface layer of the above polyurethane, and in this case its

constituting fibers are not restricted to those dyeable with acid dyes. However, the constituting fibers are preferably dyeable with acid dyes, to prevent generation of any heterocolor feeling in the cross-section of the leather-like sheet. For suede-type leather-like sheets with raised fibers, the fibrous base may comprise any fibers dyeable with acid dyes and, thus, be any one of knit, woven and nonwoven fabrics formed of synthetic fibers such as polyamide fibers or tertiary amino group-modified polyester fibers or natural fibers such as wool and nonwoven fabric formed of 3-dimensionally entangled bundles of ultrafine fibers having an average fineness of less than. 0.1 denier. See col.12, ln.10-66.

Akasawa do not specifically teach the specified poly 1,6 hexamethylene carbonate diol as recited by the instant claims.

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to make a suede like sheet as recited by the instant claims with a reasonable expectation of success, because the teachings of Akasawa teaches a polyurethane composition suitable for producing leather-like sheets having a soft hand and excellent durability and being dyeable with acid dyes comprising a mixture of: a first polyurethane, a polymer diol, and a second polyurethane wherein the ratio of second polyurethane (b) to the first polyurethane (a) is in a range of 0.5 to 50% by weight and further suggests the use of carbonate diols in general.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Conclusion

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11. Remaining references cited but not relied upon are considered to be cumulative to or less pertinent than those relied upon or discussed above.

Applicant is reminded that any evidence to be presented in accordance with 37 CFR 1.131 or 1.132 should be submitted before final rejection in order to be considered timely.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Preeti Kumar whose telephone number is 703-305-0178. The examiner can normally be reached on M-F 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on 703-308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-872-9309.

Preeti Kumar
Examiner
Art Unit 1751

PK
June 29, 2003

JOHN HARDEE
PRIMARY EXAMINER